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Amended patent claims

1. A process for producing copy protection for an electronic circuit, comprising the steps of providing a substrate (1) which has semiconductor structures (2) on at least a first side (1a) of the substrate (1), providing a material for coating the substrate (1), coating the substrate (1) with a copy-protect layer (4), which is applied by evaporation coating.

2. The process as claimed in claim 1, wherein the semiconductor structures (2), at least in regions, are covered by means of the copy-protect layer (4), the copy-protect layer (4) being matched to the substrate (1) in such a way that an etching process which dissolves the copy-protect layer (4) likewise attacks the substrate (1) in such a manner that the semiconductor structures (2) are at least partially destroyed.

3. The process as claimed in claim 1 or 2, wherein the substrate (1) comprises a semiconductor layer of silicon, and the copy-protect layer (4) contains silicon.

4. The process as claimed in one of the preceding claims, wherein a continuous layer is applied as the copy-protect layer (4).

5. The process as claimed in one of the preceding claims, wherein the copy-protect layer (4) comprises glass, in particular silicate glass.

6. The process as claimed in one of the preceding claims, wherein the copy-protect layer (4) comprises a borosilicate glass with aluminum oxide and alkali metal oxide fractions.

7. The process as claimed in one of the preceding claims, wherein the copy-protect layer (4) comprises an at least binary system.

8. The process as claimed in one of the preceding claims, wherein the copy-protect layer (4) comprises a shield against electromagnetic waves.

9. The process as claimed in one of the preceding claims, wherein the copy-protect layer (4) is applied by evaporation coating induced by thermal evaporation or by electron beam evaporation.

10. The process as claimed in one of the preceding claims, wherein the copy-protect layer (4) is applied to the substrate in a thickness of from 0.01 to 1000 μm.

11. The process as claimed in one of the preceding claims, wherein the coating of the substrate (1) with the copy-protect layer (4) is carried out at a bias temperature of below 300°C.

12. The process as claimed in one of the preceding claims, wherein the coating of the substrate (1) with the copy-protect layer (4) is carried out at a pressure of from 10^{-3} mbar to 10^{-7} mbar.

13. The process as claimed in one of the preceding claims, wherein a glass layer (14) is applied to a second side (1b)

of the substrate (1), which is on the opposite side from the first side (1a).

14. The process as claimed in one of the preceding claims, wherein a plastics layer (5) is applied to a second side (1b) of the substrate (1), which is on the opposite side from the first side (1a).

15. The process as claimed in one of the preceding claims, wherein
the substrate (1) is thinned,
etching pits (6) with connection structure regions (3) as etching stop are produced on the first side (1a) of the substrate (1),
a plastics layer (10) is applied to a second side (1b) of the substrate (1), which is on the opposite side from the first side (1a), by means of plastics lithography, with the connection structure regions (3) remaining open,
contacts (7) are produced on the second side (1b) by coating with a conductive layer,
a ball grid array (8) is applied, and
the substrate (1) is diced into individual chips.

16. The process as claimed in claim 15, wherein the plastics layer (10) on the second side (1b) is removed again.

17. The process as claimed in one of the preceding claims, wherein
a second side (1b) of the substrate (1), which is on the opposite side from the first side (1a), is evaporation-coated with a glass layer (11) that is from 0.01 µm to 50 µm thick, and

connection structure regions (7) located beneath the glass layer (11) are uncovered by means of grinding or etching.

18. The process as claimed in one of the preceding claims, wherein etching pits (6) are filled with conductive material.

19. The process as claimed in one of the preceding claims, wherein
the substrate (1) comprises connection structures which are coated with a structured covering layer (15) before the coating with the copy-protect layer (4) is carried out,
the copy-protect layer (4) is thinned, at least until the covering layer (15) has been uncovered, and
the covering layer (15) is removed in order to uncover the connection structures (3).

20. The process as claimed in one of the preceding claims, wherein at least sections of a covering layer (15) and at least sections of the copy-protect layer (4) are removed by means of a lift-off technique.

21. The process as claimed in one of the preceding claims, wherein a ball grid array (18) is applied to the first side (1a) of the substrate (1) on connection structures (3).

22. The process as claimed in one of the preceding claims, wherein the semiconductor structures (2) comprise electronic decryption means.

23. An electronic component, producible by the process as claimed in one of the preceding claims.

24. The electronic component with copy protection, comprising
an electronic circuit on a substrate (1) with semiconductor structures (2) on a first side (1a) of the substrate (1), and
a copy-protect layer (4).

25. The electronic component as claimed in claim 23 or 24, wherein the copy-protect layer (4) contains a first material, the semiconductor structures (2) being covered by the copy-protect layer (4) at least in regions, the copy-protect layer (4) being fixedly joined to the substrate (1), and the first material being determined in such a manner that an etching process which dissolves the copy-protect layer likewise attacks the substrate in such a manner that the electronic circuit is destroyed.

26. The electronic component as claimed in one of claims 23 to 25, wherein the substrate (1) comprises a semiconductor layer of silicon and the copy-protect layer (4) contains silicon.

27. The electronic component as claimed in one of claims 23 to 26, wherein the copy-protect layer (4) comprises a continuous layer.

28. The electronic component as claimed in one of claims 23 to 27, wherein the copy-protect layer (4) comprises glass, in particular silicate glass.

29. The electronic component as claimed in one of claims 23 to 28, wherein the copy-protect layer (4) comprises a borosilicate glass with aluminum oxide and alkali metal oxide fractions.

30. The electronic component as claimed in one of claims 23 to 29, wherein the copy-protect layer (4) is applied by evaporation coating.

31. The electronic component as claimed in one of claims 23 to 30, wherein the copy-protect layer (4) comprises a binary system.

32. The electronic component as claimed in one of claims 23 to 31, wherein the copy-protect layer (4) comprises shielding against electromagnetic waves.

33. The electronic component as claimed in one of claims 23 to 32, wherein the copy-protect layer (4) is applied by evaporation coating induced by thermal evaporation or by electron-beam evaporation.

34. The electronic component as claimed in one of claims 23 to 33, wherein the copy-protect layer (4) is from 0.01 μm to 1000 μm thick.

35. The electronic component as claimed in one of claims 23 to 34, wherein the substrate (1) has connection structures (3), and elevated connection structures (8) are arranged on a second side (1b) of the substrate (1), which is on the opposite side from the first side (1a), the connection contacts (8) being electrically connected to the connection structures (3).

36. The electronic component as claimed in claim 35, wherein the second side (1b) of the substrate (1) is coated with plastic (10) between the connection contacts (8), with

the connection contacts (8) remaining uncovered in such a manner that they can be contact-connected.

37. The electronic component as claimed in claim 35 or 36, wherein the second side (1b) of the substrate (1) is coated with glass (11) between the connection contacts (8), with the connection contacts (8) remaining uncovered such that they can be contact-connected.

38. The electronic component as claimed in one of claims 23 to 37, wherein the substrate (1) has connection structures and elevated connection contacts (18) are arranged on the first side (1a) of the substrate (1), the connection contacts (18) being electrically connected to the connection structures (3).

39. The electronic component as claimed in one of claims 23 to 38, wherein the copy-protect layer (4) on the first side (1a) of the substrate (1) extends between connection contacts (3, 18), the connection contacts (3, 18) remaining uncovered such that they can be contact-connected.

40. The electronic component as claimed in one of claims 23 to 39, wherein the electronic circuit comprises decryption means.

41. The electronic component as claimed in one of claims 23 to 40, wherein the copy-protect layer (4) has a first portion (4a) and a second portion (4b) which have different etching properties, in particular comprise materials with different etching rates.

42. A decryption device for decrypting encrypted signals, in particular used in pay broadcasting, comprising the component as claimed in one of claims 24 to 41.

43. An apparatus which is designed to carry out the process as claimed in one of claims 1 to 22.

44. The use of a coating on an electronic circuit, which coating is producible in particular by the process as claimed in one of claims 1 to 22 and/or is part of the electronic component as claimed in one of claims 23 to 41, to protect against uncovering of the circuit by the coating being etched away.